

AMENDMENTS TO THE CLAIMS

Claim 1-6 (canceled)

5 Claim 7 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

a transparent substrate;
an amorphous interface layer formed on the transparent substrate;
a top surface of the amorphous interface layer comprising a first surface region
10 and a second surface region;

a p^+ -type contact layer formed on the first surface region;
a p-type cladding layer formed on the p^+ -type contact layer;
a multiple quantum well (MQW) light-emitting layer formed on the p-type
cladding layer;

15 an n-type cladding layer formed on the MQW light-emitting layer;
an n-type stop layer formed on the n-type cladding layer;
a transparent conductive layer formed on the n-type stop layer;
a first electrode formed on the transparent conductive layer; and
a second electrode formed on the second surface region.

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Claim 8 (currently amended): A light emitting diode having a transparent substrate, the light emitting diode comprising:

a transparent substrate comprising sapphire;
an amorphous interface layer formed on the transparent substrate, a top surface
25 of the amorphous interface layer comprising a first surface region and a
second surface region;
a contact layer of p^+ -type GaAs formed on the first surface region;
a p-type cladding layer of p-type AlGaInP formed on the contact layer[[.]];
a light-emitting layer of AlGaInP formed on the p-type cladding layer;

an n-type cladding layer of n-type AlGaInP formed on the light-emitting layer;
a stop layer of n-type AlGaAs formed on the n-type cladding layer;
an indium tin oxide (ITO) transparent conductive layer formed on the stop
layer[[.]];
5 a first electrode formed on the ITO transparent conductive layer[[.]]; and
a second electrode formed on the second surface region.

Claim 9 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

10 an ohmic contact electrode;
a p-type transparent substrate formed on the ohmic contact electrode;
a first p⁺-type contact layer formed on the transparent substrate;
an amorphous interface layer formed on the first p⁺-type contact layer;
a second p⁺-type contact layer formed on the amorphous interface layer;
15 a p-type cladding layer formed on the second p⁺-type contact layer;
a light-emitting layer formed on the p-type cladding layer;
an n-type cladding layer formed on the light-emitting layer;
an n-type stop layer formed on the n-type cladding layer;
a transparent conductive layer formed on the n-type stop layer; and
20 a first electrode formed on the transparent conductive layer.

Claim 10 (currently amended): A light emitting diode having a transparent substrate, the light emitting diode comprising:

25 an ohmic contact electrode;
a p-type GaP transparent substrate formed on the ohmic contact electrode;
a first p⁺-type contact layer of p⁺-type GaAs formed on the p-type GaP
transparent substrate;
an indium tin oxide amorphous interface layer formed on the first p⁺-type
contact layer;

- a second p^+ -type contact layer of p^+ -type GaAs formed on the indium tin oxide amorphous interface layer;
- a p -type cladding layer of a p -type AlGaInP formed on the second p^+ -type contact layer;
- 5 a multiple quantum well light-emitting layer of AlGaInP formed on the p -type cladding layer;
- an n -type cladding layer of n -type AlGaInP formed on the light-emitting layer;
- a stop layer of n -type AlGaAs formed on the n -type cladding layer;
- 10 an indium tin oxide (ITO) transparent conductive layer formed on the stop layer;
- a first electrode formed on the ITO transparent conductive layer.

Claim 11 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

- a first electrode;
- 15 an n -type transparent substrate formed on the first electrode;
- an amorphous interface layer formed on the n -type transparent substrate;
- an n -type contact layer formed on the amorphous interface layer;
- an n -type cladding layer formed on the n -type contact layer;
- a light-emitting layer formed on the n -type cladding layer;
- 20 a p -type cladding layer formed on the light-emitting layer;
- a p -type buffer layer formed on the p -type cladding layer;
- a p^+ -type contact layer formed on the p -type buffer layer;
- a transparent conductive layer formed on the p^+ -type contact layer; and
- 25 a second electrode formed on the transparent conductive layer.

Claim 12 (currently amended): A light emitting diode having a transparent substrate, the light emitting diode comprising:

- a first electrode;
- a transparent substrate of n -type GaP formed on the first electrode;

an indium tin oxide (ITO) amorphous interface layer formed on the transparent substrate of n-type GaP;

5 a contact layer of n-type GaP formed on the ITO amorphous interface layer;

a cladding layer of n-type AlGaInP formed on the contact layer of n-type GaP;

10 a multiple quantum well (MQW) light-emitting layer of AlGaInP formed on the cladding layer of n-type AlGaInP;

a cladding layer of p-type AlGaInP formed on the MQW light-emitting layer of AlGaInP;

15 a buffer layer of p-type AlGaAs formed on the cladding layer of p-type AlGaInP;

a contact layer of p⁺-type GaAs formed on the buffer layer of p-type AlGaAs;

20 an indium tin oxide (ITO) transparent conductive layer formed on the contact layer of p⁺-type GaAs; and

25 a second electrode formed on the ITO transparent conductive layer.

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Claim 13 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

a transparent substrate;

20 an amorphous interface layer formed on the transparent substrate, a top surface of the amorphous interface layer comprising a first surface region and a second surface region;

25 an n⁺-type reverse-tunneling contact layer formed on the first surface region;

a p-type cladding layer of formed on the n⁺-type reverse-tunneling contact layer;

a light-emitting layer formed on the p-type cladding layer;

an n-type cladding layer formed on the light-emitting layer;

25 a first contact electrode formed on the n-type cladding layer; and

a second electrode formed on the second surface region.

Claim 14 (original): A light emitting diode having a transparent substrate, the light

emitting diode comprising:

- a transparent substrate comprising glass;
- an indium tin oxide (ITO) amorphous interface layer formed on the transparent substrate, a top surface of the ITO amorphous interface layer comprising a 5 first surface region and a second surface region;
- a reverse-tunneling contact layer of n⁺-type InGaN formed on the first surface region;
- a cladding layer of a p-type GaN formed on the reverse-tunneling contact layer of n⁺-type InGaN;
- 10 a multiple quantum well (MQW) light-emitting layer of InGaN formed on the cladding layer of a p-type GaN;
- a cladding layer of n-type GaN formed on the MQW light-emitting layer of InGaN;
- a first contact electrode formed on the cladding layer of n-type GaN;
- 15 a second electrode formed on the second surface region.